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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,198	06/04/2001	Jens Chr. Jensenius	09011-002002	2556
1444	7590	06/30/2004	EXAMINER	
BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			MOORE, WILLIAM W	
			ART UNIT	PAPER NUMBER
			1652	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/874,198	JENSENIUS ET AL.	
	Examiner	Art Unit	
	William W. Moore	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,5,22,28,46,47,49-52,54,57-69 and 72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,5,22,46,50-52,54,57,58 and 60-68 is/are allowed.
- 6) ☒ Claim(s) 28,47,49,59,69 and 72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed June 14, 2004, has been entered, canceling claims 70 and 71 and amending claims 50-52, 54, 65 and 66. While the amendment is an "After-Final" amendment, it was entered, and this non-final communication prepared, in order to expedite prosecution of what are essentially new issues involving claims 28 and 59 which were not set forth in the recent communication mailed April 21, 2004, nor set forth in the previous Office communications. The claim cancellations and amendments in the Amendment filed June 14, 2004, advance prosecution by increasing the set of claims free of rejections of record under 35 U.S.C. § 112, first paragraph, and by overcoming the objection of record to claims 50 and 71 and the rejection of record of claims 65-68 under 35 U.S.C. § 112, second paragraph, which would have applied equally to claim 54 were it not also amended in the same manner as claims 65 and 66. Applicant's summary at pages 7 and 8 of the Remarks accompanying the Amendment filed June 14, 2004, of the telephonic interview conducted June 9, 2004, is accurate in all respects. Comparison, however, of the number of undisclosed species embraced by claims 47, 49, 69, and 72 with the extent of the disclosure in the instant application has been reconsidered and the previous grounds of rejection affecting their claimed subject matters is restated herein, as well as new grounds of rejection of claims 28 and 59.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 28 is rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

This is a new ground of rejection. The specification discloses no diseases, medical conditions, or physiological conditions involving a deficiency in the activity of the native MASP-2, nor even how to determine whether or not there is a deficiency in the activity of the native MASP-2 in a person, thus cannot disclose any disease, medical condition, or physiological condition that involves a "deficien[cy] in the activity of" the MASP-2-like protease of claim 50 to which claim 28 refers or a method of treating the unknown deficiency by administering the MASP-2-like protease of claim 50 to a patient. Indeed, in the absence of any disclosure of a particular aspect of the complement-mediated immune response in which the native MASP-2 protease is involved, the artisan reading the specification cannot ascertain the nature of a claimed method of treatment or recognize that Applicant was in possession of such a method at the time the specification was filed. "While one does not need to have carried out one's invention before filing a patent application, one does need to be able to describe that invention with particularity" to satisfy the description requirement of the first paragraph of 35 U.S.C. §112. *Fiers v. Revel v. Sugano*, 25 USPQ2d 1601, 1605 (Fed. Cir. 1993). Nothing demonstrates that, at the time the specification was filed, Applicant was "able to envision" what constitutes a deficiency in the activity of MASP-2 or a method of treating such a deficiency for any particular purpose that could provide the public with identifying "characteristics [that could] sufficiently distinguish it" from treating a person with, e.g., aspirin. *Fiers*, 25 USPQ2d at 1604 (citing *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991)). The specification's treatment of the claimed method of treatment is considered to be entirely prospective where skilled artisans in the fields of immunology and medicine could not predict the signs or consequences of a MASP-2 deficiency, thus arrive at a diagnosis, or know what the claimed method of treatment might be expected to accomplish.

Claims 47, 49, 69, and 72 are for reasons of record rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the

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specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant's arguments filed June 14, 2004, have been fully considered but they are not persuasive. Applicant suggests that the amendment of claim 47 indicating seven sets of homofunctional, i.e., conservative, amino acid substitution sets involving fifteen of the twenty naturally-occurring amino acids will permit the artisan to identify sites and substituents for altering 15%, in claims 47 and 69, or 10%, in claims 49 and 72, of the positions in amino acid sequence of the mature MASP-2 protease of SEQ ID NO:2 between positions 17 and 686. Yet a single disclosed species cannot be considered to be representative of undisclosed species that diverge as much as 15% in amino acid sequence identity from that single species where the specification offers no identifying characteristics of the numerous other species of claims 47, 49, 69, and 72 that differ in their amino acid sequences and neither exemplifies nor describes the preparation of members of this broad genus of polypeptides exhibiting the activities recited in claim 47 and also required in claims 49, 69, and 72 that depend therefrom. Where the artisan reading the specification cannot ascertain the nature of the claimed, but undisclosed, species of claims 47, 49, 69, and 72, the artisan could not recognize that Applicant was in possession of these subject matters at the time the specification was filed. "While one does not need to have carried out one's invention before filing a patent application, one does need to be able to describe that invention with particularity" to satisfy the description requirement of the first paragraph of 35 U.S.C. §112. *Fiers v. Revel v. Sugano*, 25 USPQ2d 1601, 1605 (Fed. Cir. 1993). Nothing demonstrates that, at the time the specification was filed, Applicant was "able to envision" enough of the structure of the undisclosed generic proteins reached by the claims rejected herein to provide the public with identifying "characteristics [that] sufficiently distinguish it . . . from other materials". *Fiers*, 25 USPQ2d at 1604 (citing *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991)). The rejection of record is sustained

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because the specification's treatment of the claimed subject matter is considered to be entirely prospective where skilled artisans in the relevant fields of molecular biology and medicine could not predict the structure, or other properties, of the generic products of claims 47, 49, 69, and 72.

Claim 28 is rejected under 35 U.S.C. § 112, first paragraph, because the specification is not enabling for the practice of a method of treating anything in particular by administering a MASP-2-like protease of claim 50 to a patient. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with this claim.

The method of claim 28 is not enabled because the specification does not teach the artisan how to recognize a deficiency in the activity of the native human MASP-2 protease having the amino acid sequence of SEQ ID NO:2 between positions 17 and 686, or what medical or physiological condition, or what disease, the artisan could treat with such a method utilizing the native human MASP-2 protease having the amino acid sequence of SEQ ID NO:2 between positions 17 and 686, thus cannot teach the artisan how to recognize and treat a deficiency in an activity of the MASP-2-like protease of claim 50. It is well settled that 35 U.S.C. § 112, first paragraph, requires that a disclosure be sufficiently enabling to allow one of skill in the art to practice the invention as claimed without undue experimentation and that unpredictability in an attempt to practice a claimed invention is a significant factor supporting a rejection under 35 U.S.C. §112, first paragraph, for non-enablement. See, *In re Wands*, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (recognizing and applying the "*Forman*" factors). Cf., *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986) (citing eight factors relevant to analysis of enablement). Where the specification provides no guidance for experimentation, any experimentation is undue experimentation thus the scope of the method embraced by the claim is unsupported by the present specification.

Claims 47, 49, 69, and 72 are for reasons of record rejected under 35 U.S.C. § 112, first paragraph, because the specification is not enabling for the preparation of a functioning human MASP-2 protease having an amino acid sequence that diverges from the amino acid sequence of SEQ ID NO:2, nor for a product that

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diverges as much as 15% from the amino acid sequence of SEQ ID NO:1 that has any use in identifying a native, human, MBL-MASP-2 complex. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicant's arguments filed June 14, 2004, have been fully considered but they are not persuasive. Applicant suggests that the amendment of claim 47 detailing seven sets of homofunctional, i.e., conservative, amino acid substitution sets involving fifteen of the twenty naturally-occurring amino acids will permit the artisan to identify sites and substituents for altering 15%, in claims 47 and 69, or 10%, in claims 49 and 72, of the positions in amino acid sequence of the mature MASP-2 protease of SEQ ID NO:2 between positions 17 and 686. Although the specification's Figure 2 identifies many conserved positions in the MASP-2 protease where claims 69 and 72 permit no alteration, it fails to identify the majority of the native amino acid positions that provide the sum of secondary and tertiary structural features of MASP-2 that permit it to recognize complement and to be influenced by mannan-binding. Mere sequence perturbation cannot enable the design and preparation of a myriad of divergent proteases that will provide the public with a protease that retains its native functions. The standard set by the CCPA, the precursor of the Court of Appeals for the Federal Circuit, is not to "make and screen" any and all possible alterations because a reasonable correlation must exist between the scope asserted in the claimed subject matter and the scope of guidance the specification provides. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 25 (CCPA 1970). The Federal Circuit approved the CCPA's standard in *Genentech, Inc. v. Novo-Nordisk A/S*, 42 USPQ2d 1001 (Fed. Cir. 1997). Because claims 47, 49, 53 and 69-71 contemplate arbitrary assignments of amino acid substitutions anywhere in the sequence of the disclosed, native, human MASP-2 protease, and because neither the specification nor the prior art of record, taken together, can support the introduction of amino acid substitutions at as many as 100 (15%), or even as few as 67 (10%), of the unspecified amino acid positions within the

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amino acid sequence region defined by claims 47, 49, 69, and 72, yet produce a variant that retains either a native protease or a mannan-binding lectin-associating activity, the rejection of record is sustained.

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 59 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This is a new ground of rejection. Claim 59 is indefinite in reciting "where said polypeptide is bound by a monoclonal antibody" because this describes an invention not intended by Applicant, viz., a complex of a MASP-2-like protease and a monoclonal antibody. Applicant instead had intended to describe a MASP-2-like protease that is recognized by an antibody that recognizes the mature, native, MASP-2 protease of SEQ ID NO:2. An amendment replacing the phrase "is bound by" with the single word "binds" will overcome this rejection because the binding of protease and monoclonal antibody is cooperative.

Conclusion

Claims 4, 5, 22, 46, 50-52, 54, 57, 58, and 60-68 are allowed. While they cannot constitute prior art in view of their later effective filing dates, U.S. Patents to Hugli and Hugli et al. are made of record herewith as pertinent to Applicant's disclosure because they discuss uses of the MASP-2 protease.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William W. Moore whose telephone number is now 571.272.0933. The examiner can normally be reached between 9:00AM and 5:30PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Ponnathapura Achutamurthy, can now be reached at 571.272.0928. The fax phone numbers for all communications for the organization where this application or proceeding is assigned remains 703.872.9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is now 571.272.1600.

William W. Moore
June 22, 2004



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